

# Facility Specific Standard Variance Data Sheet

**Directions:** Please complete this form electronically. Record information in the space provided. Select checkboxes by double clicking on them. Do not delete or alter any fields. For citations, include page number and section if applicable. Please ensure that all data requested are included and as complete as possible. Attach additional sheets if needed.

## Section I: General Information

**A. Name of Permittee:** Brenna Stow

**B. Facility Name:** Green Bay Packaging – Mills Division

**C. Submitted by:** Wisconsin Department of Natural Resources

**D. State:** Wisconsin **Substance:** Mercury **Date completed:** Drafter

**E. Permit #:** WI-0000973-08-0 **WQSTS #:** (EPA USE ONLY)

**F. Duration of Variance** **Start Date:** 10/01/2016 **End Date:** 09/30/2016

**G. Date of Variance Application:** 12/19/2013

**H. Is this permit a:** ☒ First time submittal for variance  
☐ Renewal of a previous submittal for variance (Complete Section X)

## I. Description of proposed variance:

Green Bay Packaging Inc. Mill Division produces paper for the manufacture of corrugated (cardboard) containers. An average of 625 tons per day of liner board and/or corrugated medium is produced from recycled pulp. The water used in the pulp recovery and paper making process is recycled back into the mill's pulp and paper making system. Over the last five years, an average of 952,000 gallons per day was discharged through to the Fox River. More than 87% (836,000 gal/day) of the discharge is from once-through use of river water for sealing large vacuum pumps. The remainder is from Green Bay Utility Water that is used in various processes such as non-contact water from cooling pumps, air compressors, air conditioners, paper rolls, and boiler room wastewater.

Green Bay Packaging has been monitoring mercury for the past couple permit terms and the incoming river water consistently has mercury concentrations above the water quality standard of 1.3 ng/L. Green Bay Packaging also submitted a pollutant minimization plan (PMP) on May 30, 2014.

**Citation:** An alternative mercury effluent limitation under s. NR 106.145, Wis. Adm. Code represents a variance to water quality standards authorized by s. 283.15, Wis. Stats.

## J. List of all who assisted in the compilation of data for this form

Name	Email	Phone	Contribution
Brenna Stow	<a href="mailto:Brenna.Stow@wisconsin.gov">Brenna.Stow@wisconsin.gov</a>	608-267-7640	
David Gerdman	<a href="mailto:David.Gerdman@wisconsin.gov">David.Gerdman@wisconsin.gov</a>	920-662-5133	
Jim Schmidt	<a href="mailto:JamesW.Schmidt@wisconsin.gov">JamesW.Schmidt@wisconsin.gov</a>	608-267-7658	Parts II D-H and J
Others?			

## Section II: Criteria and Variance Information

**A. Water Quality Standard from which variance is sought:** 1.3 ng/L Wildlife Criterion

**B. List other criteria likely to be affected by variance:** 1.5 ng/L Human Threshold Criterion

**C. Source of Substance:** Fox River intake water, bentonite, sodium hydroxide, sulfuric acid, trace amounts in raw materials  
 Devices: switches, ballasts, lamps, thermometers, batteries

**D. Ambient Substance Concentration:** 7.607ng/L ☒ Measured ☐ Estimated  
☐ Default ☐ Unknown

**E. If measured or estimated, what was the basis? Include citation.** Fox River water samples were collected for the past couple permit terms; the average ambient concentration from 2010 – current (n=25) is 7.607 ng/L with a range from 0.25 ng/L to 26.5 ng/L. Fox River water samples have been collected quarterly by GBP and reported on their Discharge Monitoring Reports. Results are stored in the Wisconsin Department of Natural Resources WPDES database.

<b>F. Average effluent discharge rate:</b>	0.952 MGD (2010-2016)	<b>Maximum effluent discharge rate:</b>	1.300 MGD (08/04/2012)
<b>G. Effluent Substance Concentration:</b>	6.346 ng/L	<input checked="" type="checkbox"/> Measured <input type="checkbox"/> Default	<input type="checkbox"/> Estimated <input type="checkbox"/> Unknown
<b>H. If measured or estimated, what was the basis? Include Citation.</b> Effluent water samples were collected for the past couple permit terms; the average ambient concentration from 2010 – current (n=25) is 6.346 ng/L with a range from 0.25 ng/L to 21.0 ng/L. Effluent samples for mercury have been collected quarterly by GBP and reported on their Discharge Monitoring Reports. Results are stored in the Wisconsin Department of Natural Resources WPDES database.			
<b>I. Level currently achievable (LCA):</b>	24.0 ng/L		
<b>J. Variance Limit:</b>	24.0 ng/L		
<b>K. What data were used to calculate the LCA, and how was the LCA derived? (Immediate compliance with LCA is required.)</b> Green Bay Packaging effluent samples (n=21) from 2009-2014 were used to calculate the LCA and variance limit. These samples were accompanied by field blanks and paired with influent samples because GBP achievable limit is based on the incoming river water mercury concentrations. <b>Citation:</b> s. NR 106.145(5), Wis. Adm. Code.			
<b>L. Explain the basis used to determine the variance limit (which must be ≤ LCA). Include citation.</b> The variance limit = 1 Day P99. The limit is established in accordance with s. NR 106.145(5), Wis. Adm. Code.			
<b>M. Select all factors applicable as the basis for the variance provided under 40 CFR 131.10(g). Summarize justification below:</b> <div style="float: right;"> <input type="checkbox"/> 1   <input type="checkbox"/> 2   <input type="checkbox"/> 3   <input type="checkbox"/> 4   <input type="checkbox"/> 5   <input checked="" type="checkbox"/> 6         </div>			
Section NR 106.145(1), Wis. Adm. Code, outlines several findings that justify variances for mercury. The Department intended that this provision be generally applicable to all dischargers of mercury, which produce large volumes of effluent with already extremely low mercury concentrations. The Department considers treating to produce effluent at concentrations to meet the limit to be technically and economically infeasible.  <b>Citation:</b> Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy, April 24, 1997, Ohio Environmental Protection Agency, Division of Surface Water and Foster Wheeler Environmental Corporation and DRI/McGraw-Hill in support of Amended and New Rules in OAC Chapters 3745-1, -2, and -33.			
<b>Section III: Location Information</b>			
<b>A. Counties in which water quality is potentially impacted:</b>	Brown		
<b>B. Receiving waterbody at discharge point:</b>	Lower Fox River		
<b>C. Flows into which stream/river?</b>	Lake Michigan	<b>How many miles downstream?</b>	< 1 mi
<b>D. Coordinates of discharge point (UTM or Lat/Long):</b>	44°31'49"N 88°00'27"W		
<b>E. What are the designated uses associated with this waterbody?</b>	Fish and Aquatic Life, General, Recreation, Public Health and Welfare, Fish Consumption		
<b>F. What is the distance from the point of discharge to the point downstream where the concentration of the substance falls to less than or equal to the chronic criterion of the substance for aquatic life protection?</b> Ambient mercury concentrations in surface water resulting from the variance will be substantially less than levels that result in direct toxicity to aquatic organisms. EPA's current chronic aquatic life criterion for mercury is 0.9081 µg/L, which is approximately three orders of magnitude greater than the wildlife criteria (0.0013 µg/L). Wisconsin's criteria are 0.44 µg/L and 0.83 µg/L for chronic and acute toxicity, respectively.			
<b>G. Provide the equation used to calculate that distance</b>	See above.		
<b>H. Identify all other variance permittees for the same substance which discharge to the same stream, river, or waterbody in a location where the effects of the combined variances would have an additive effect on the waterbody:</b>			
<b>Permit Number</b>	<b>Facility Name</b>	<b>Facility Location</b>	<b>Variance Limit [ng/L]</b>
0001261	Georgia Pacific	Day St., Green Bay, WI	11
0001848	Georgia Pacific	Broadway, Green Bay, WI	5.73
0001031	Proctor and Gamble	Green Bay, WI	14
0000965	WPS Corp Pulliam	Green bay, WI	48
Please attach a map, photographs, or a simple schematic showing the location of the discharge point as			

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## Section VII: Aquatic Life and Environmental Impact

**A. Aquatic life use designation of receiving water:** Warm Water Sport Fish

**B. Applicable criteria affected by variance:** 1.3 ng/L Wildlife Criterion

**C. Identify any environmental impacts to aquatic life expected to occur with this variance, and include any citations:**

Ambient mercury concentrations in surface water resulting from the variance will be substantially less than levels that result in direct toxicity to aquatic organisms. EPA's current chronic aquatic life criterion for mercury is 0.9081 µg/L, which is approximately three orders of magnitude greater than the wildlife criteria (0.0013 µg/L). Wisconsin's criteria are 0.44 µg/L and 0.83 µg/L for chronic and acute toxicity, respectively.

Other environmental impacts might occur to non-aquatic species through more indirect exposure pathways (i.e., diet). For some species, like the bald eagle (*Haliaeetus leucocephalus*), recent trends indicate that mercury exposure is decreasing. Bald eagles consume fish and waterfowl from surface waters, which puts them at risk of exposure to toxic levels of mercury due to bioaccumulation from their prey organisms. However, ambient surface water data has shown that mercury levels have not increased in recent decades and bald eagle populations have continued to grow. In fact, the Bald eagle has been delisted from federal status due to recovery. We believe that the bald eagle is representative of other species that are located at higher trophic levels. The consistent environmental levels of mercury and recovery of the bald eagle populations in Wisconsin suggest that the potential impact of mercury resulting from the variance on higher trophic level organisms is minimal.

Although this variance will allow permitted dischargers additional time to identify and control sources of mercury in their discharges, the pollutant minimization component of the variance should result in a net reduction in the amount of mercury discharged to Wisconsin surface waters from permitted point sources further reducing risk to bald eagles and other wildlife. In addition, the pollutant minimization programs for mercury typically result in other pollution prevention efforts that have a beneficial indirect effect of reducing the use and production of products and processes that use or contribute mercury to the environment. These efforts will also reduce any potential for negative impacts.

For other species at lower trophic levels, the amount of mercury that they are likely to be exposed to via their diet is much lower than species in the higher trophic levels. Therefore, the mercury concentrations resulting from the variance are not expected to negatively impact these species. This would include species like Piping plover, Eastern massasauga rattlesnake and freshwater mussels.

**D. List any Endangered or Threatened species known or likely to occur within the affected area, and include any citations:**

Because mercury is pervasive, persistent and bio accumulating in the environment we considered all species listed for the entire state of Wisconsin. The following is Federally Endangered, Threatened, Proposed, and Candidate Species in Wisconsin From U.S. Fish and Wildlife Service, Region 3, April 2015

### **MAMMALS**

Canada lynx (T)

Gray wolf (E)

Northern long-eared bat (T)

### **BIRDS**

Kirtland's warbler (E)

Piping plover (E and CH)

Red Knot (T)

Whooping crane - (NEP)

### **REPTILE**

Eastern massasauga rattlesnake (C)

### **INSECTS**

Hine's emerald dragonfly (E)

Karner blue butterfly (E)

Poweshiek skipperling (E and PCH)

### **CLAMS (Freshwater mussels, Unionids)**

Higgins' eye pearlymussel (E)

Sheepnose mussel (E) Snuffbox (E) Spectaclecase mussel (E) Winged mapleleaf mussel (E)	
<b>Citation:</b> U.S. Fish & Wildlife Service – Environmental Conservation Online System <a href="http://www.fws.gov/endangered/">(http://www.fws.gov/endangered/)</a> and National Heritage Index ( <a href="http://dnr.wi.gov/topic/nhi/">http://dnr.wi.gov/topic/nhi/</a> )	
<b>Section VIII: Economic Impact and Feasibility</b>	
<b>A. What modifications would be necessary to comply with the current limits? Include any citations.</b> The Department did not evaluate what actions or modifications or other changes would be needed to meet limits based on the water quality standard. As discussed below, the Department considers treating to produce effluent at concentrations to meet the limit to be technically and economically infeasible. <b>Citation:</b> Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy, April 24, 1997, Ohio Environmental Protection Agency, Division of Surface Water and Foster Wheeler Environmental Corporation and DRI/McGraw-Hill in support of Amended and New Rules in OAC Chapters 3745-1, -2, and -33.	
<b>B. Identify any expected environmental impacts that would result from further treatment, and include any citations:</b> See above.	
<b>C. Is it technically and economically feasible for this permittee to modify the treatment process to reduce the level of the substance in the discharge?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown The Department considers treating to produce effluent at concentrations to meet the limit to be technically and economically infeasible. <b>Citation:</b> Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy, April 24, 1997, Ohio Environmental Protection Agency, Division of Surface Water and Foster Wheeler Environmental Corporation and DRI/McGraw-Hill in support of Amended and New Rules in OAC Chapters 3745-1, -2, and -33.	
<b>D. If treatment is possible, is it possible to comply with the limits on the substance?</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
<b>E. If yes, what prevents this from being done? Include any citations.</b> See above.	
<b>F. List any alternatives to current practices that have been considered, and why they have been rejected as a course of action, including any citations:</b>	
<b>Section IX: Compliance with Water Quality Standards</b>	
<b>A. Describe all activities that have been, and are being, conducted to reduce the discharge of the substance into the receiving stream. This may include existing treatments and controls, consumer education, promising centralized or remote treatment technologies, planned research, etc. Include any citations.</b> See PMP	
<b>B. Describe all actions that the permit requires the permittee to complete during the variance period to ensure reasonable progress towards attainment of the water quality standard. Include any citations.</b> See PMP	
<b>Section X: Compliance with Previous Permit (Variance Reissuances Only)</b>	
<b>A. Date of previous submittal:</b> _____ <b>Date of EPA Approval:</b> _____	
<b>B. Previous Permit #:</b> _____ <b>Previous WQSTS #:</b> _____ (EPA USE ONLY)	
<b>C. Effluent substance concentration:</b> _____ <b>Variance Limit:</b> _____	
<b>D. Target Value(s):</b> _____ <b>Achieved?</b> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial	
<b>E. For renewals, list previous steps that were to be completed. Show whether these steps have been completed in compliance with the terms of the previous variance permit. Attach additional sheets if necessary.</b>	
<b>Condition of Previous Variance</b>	<b>Compliance</b>
	<input type="checkbox"/> Yes <input type="checkbox"/> No

